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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/812,142	VAN EGMOND ET AL.	
	Examiner	Art Unit	
	RANDY BOYER	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 January 2008 and 25 January 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14,17-21,24,26-37 and 40-46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-14,17-21,24,26-31,34-37 and 40-46* is/are rejected.

7)☒ Claim(s) *2,3,32 and 33* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 25 January 2008 has been entered.

Response to Amendment

2. Examiner acknowledges Applicant's response filed 8 January 2008 and 25 January 2008 containing amendments to the claims and remarks.

3. Claims 1-14, 17-21, 24, 26-37, and 40-46 are pending.

4. The previous rejections of claims 2, 3, 32, and 33 under 35 U.S.C. 103(a) are withdrawn in view of Applicant's amendment to the claims.

5. The previous rejections of claims 1, 8-11, 17, 20, 21, 24, 26-31, 40, and 44 under 35 U.S.C. 102(b) are maintained. Likewise, new grounds for rejection of claims 1, 8-11, 17, 20, 21, 24, 26-31, 40, and 44 under 35 U.S.C. 103(a) are entered.

6. The previous rejections of claims 4, 12-14, 26, 34, 45, and 46 under 35 U.S.C. 103(a) are maintained.

7. The previous rejections of claims 5-7, 18, 19, 35-37, and 41-43 under 35 U.S.C. 103(a) are maintained.

8. Finally, new grounds for rejection of claim 1 is entered under 35 U.S.C. 112, second paragraph. The rejections follow.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

11. Claim 1 as presently amended reads, in relevant part, "A process for recovering heat from a high temperature effluent stream from a catalyst regenerator, wherein the process comprises the steps of (a) passing the effluent stream from a catalyst regenerator through a heat exchanger associated with a steam generator fed with liquid preheated boiler feed water to produce high pressure steam and partially cool the effluent stream; . . .".

Examiner has previously (and presently) construed the above claim language to mean that the *steam generator* is fed with liquid preheated boiler feed water. However, in light of Applicant's arguments, Examiner submits that this claim language is open to more than one reasonable interpretation. Specifically, Applicant argues at page 11 of the response filed 8 January 2008 that Jörgensen's element (10) (which Examiner

maintains is equivalent to Applicant's "heat exchanger") cannot anticipate Applicant's claim because it does not impart heat to liquid preheated boiler feed water therein. Thus, it seems clear that Applicant is interpreting the above claim language to mean that the *heat exchanger* (and not the *steam generator*) is fed with liquid preheated boiler feedwater.

In view of these two reasonable (yet disparate) interpretations being given to claim 1, Examiner finds the claim language indefinite under 35 U.S.C. 112, second paragraph. Appropriate correction is required.

Claim Rejections - 35 USC § 102 / 35 USC § 103

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office Action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

15. Claims 1, 8-11, 17, 20, 21, 24, 26-31, 40, and 44 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Jörgensen (US 4,509,326).

16. With respect to claim 1, Jörgensen discloses a process for recovering heat from a high temperature effluent stream from catalyst regeneration, wherein the process comprises the steps of: (a) passing the effluent stream (3) from a catalyst regenerator through a heat exchanger (10) associated with a steam generator (9) fed with liquid preheated boiler feed water (through a boiler feed water valve (5)) to produce high pressure steam and partially cool the effluent stream; (b) passing the partially cooled effluent stream through a heat exchanger (7) associated with a high pressure boiler feed water preheater to provide preheated boiler feed water and further cool the effluent stream; and (c) passing the preheated boiler feed water to the steam generator (9), wherein the preheated boiler preheated feed water and the high pressure steam from the steam generator (9) are mixed in a steam drum (8) and liquid boiler feed water is passed from the steam drum (8) to the steam generator (9) (see Jörgensen, column 3, lines 7-45; and Fig. 2), and wherein steam is taken from the steam drum (8) (see Jörgensen, column 3, lines 7-20; and Fig. 2).

17. With respect to claim 8, Jörgensen discloses wherein the further cooled effluent stream contains catalyst fines (see Jörgensen, column 2, lines 59-68) and is directed to a catalyst fines removal unit (15) for removal of the catalyst fines.

18. With respect to claim 9, Jörgensen discloses wherein the catalyst fines removal unit is a cyclone separator (see Jörgensen, column 3, lines 35-40).

19. With respect to claim 10, Jörgensen discloses wherein the effluent stream is passed from the catalyst fines removal unit (15) to a flue gas stack (18) for disposal in ambient atmosphere (see Jörgensen, column 3, lines 35-45; and Fig. 2).

20. With respect to claim 11, Jörgensen discloses wherein the high temperature effluent stream contains catalyst fines and is directed to a catalyst fines removal unit before step (a) for removal of the catalyst fines (see Jörgensen, column 2, lines 59-68).

21. from the steam drum (see Jörgensen, column 3, lines 7-20; and Fig. 2).

22. With respect to claim 17, Jörgensen discloses wherein the high temperature effluent stream is taken from a catalyst regenerator of a fluidized catalytic cracker (see Jörgensen, column 2, lines 59-63).

23. With respect to claim 20, Jörgensen discloses wherein the steam generator and the preheater are located within a common enclosure (see Jörgensen, Fig. 2).

24. With respect to claim 21, Jörgensen discloses an apparatus for recovering heat from a catalytic reactor system, comprising: (a) a catalyst regenerator (1) having an outlet for hot flue gas; (b) a steam generator (9) comprising a first indirect heat exchanger operatively connected to receive hot flue gas from the catalyst regenerator and a supply of high pressure liquid preheated boiler feed water (from steam drum (8));

(c) a boiler feed water preheater (7) comprising a second indirect heat exchanger connected to receive the boiler feed water and operatively connected to receive partially cooled flue gas from the steam generator; (d) conduit means for passing preheated high pressure boiler feed water from the preheater to the steam generator; (e) means for recovering high pressure steam from the steam generator (see Jörgensen, column 3, lines 7-45; and Fig. 2); and (f) a steam drum (8) operatively connected to receive the preheated boiler feed water and steam for mixing in the drum (8), and conduit means for passing liquid preheated boiler feed water from the steam drum (8) to the steam generator (9), and conduit means for passing steam from the steam drum (8) (see Jörgensen, Fig. 2 and accompanying text).

25. With respect to claim 24, Jörgensen discloses wherein the steam generator (9) and the preheater (7) are located within a common enclosure (see Jörgensen, Fig. 2).

26. With respect to claim 26, Jörgensen discloses a process for catalytic conversion using a catalyst which accumulates carbonaceous deposit during operation of a catalytic reactor, wherein the carbonaceous deposit is removed in a high temperature regenerator unit with a regeneration medium, the process comprising the steps of: (a) passing a high temperature effluent stream (3) from the regenerator unit to a heat exchanger (10) associated with a steam generator (9) fed with preheated boiler feed water (through boiler feed water valve (5)), to produce high pressure steam and a partially cooled effluent stream; (b) passing the partially cooled effluent stream to a heat exchanger (7) associated with a high pressure boiler feed water preheater to provide preheated boiler feed water and further cooled effluent stream; (c) passing the

preheated boiler feed water and the high pressure steam from the steam generator (9) to a steam drum (8) for direct contact and mixing; (d) recovering high pressure steam from the steam drum (8); and (e) passing liquid preheated boiler feed water from the steam drum (8) to the steam generator (9), thereby providing efficient recovery of thermal value.

27. With respect to claim 27, Jörgensen discloses wherein the further cooled effluent stream contains catalyst fines (see Jörgensen, column 2, lines 59-68) and is passed to a catalyst fines removal unit (15) for removal of the catalyst fines.

28. With respect to claim 28, Jörgensen discloses wherein the catalyst fines removal unit (15) is a cyclone separator (see Jörgensen, column 3, lines 35-40).

29. With respect to claims 29 and 30, Jörgensen discloses wherein the catalyst fines comprise particles whose largest particle dimension is less than about 60 microns (see Jörgensen, column 2, lines 63-68).

30. With respect to claim 31, Jörgensen discloses wherein the effluent stream is passed from the catalyst fines removal unit (15) to a flue gas stack (18) for disposal in ambient atmosphere (see Jörgensen, column 3, lines 35-45; and Fig. 2).

31. With respect to claim 40, Jörgensen discloses wherein the high temperature effluent stream is taken from a catalyst regenerator of a fluidized catalytic cracker (see Jörgensen, column 2, lines 59-63).

32. With respect to claim 44, Jörgensen discloses wherein the steam generator and the preheater are located within a common enclosure (see Jörgensen, Fig. 2).

Claim Rejections - 35 USC § 103

33. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

34. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

35. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

36. Claims 4, 12-14, 26, 34, 45, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jörgensen (US 4,509,326). Alternatively, claims 4, 12-14, 26, 34, 45,

and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jörgensen (US 4,509,326), as evidenced by Vaughn (US 2002/0016522).

37. With respect to claim 4, Jörgensen discloses a process for recovering heat from a high temperature effluent stream from catalyst regeneration, wherein the process comprises the steps of: (a) passing the effluent stream (3) through a heat exchanger (10) associated with a steam generator (9) fed with boiler feed water (through a boiler feed water valve (5)) to produce high pressure steam and partially cool the effluent stream; (b) passing the partially cooled effluent stream through a heat exchanger (7) associated with a high pressure boiler feed water preheater to provide preheated boiler feed water and further cool the effluent stream; and (c) passing the preheated boiler feed water to the steam generator (9) (see Jörgensen, column 3, lines 7-45; and Fig. 2) wherein the preheated boiler feed water and the high pressure steam from the steam generator (9) are mixed in a steam drum (8) and liquid boiler feed water is passed from the steam drum (8) to the steam generator (9) (see Jörgensen, column 3, lines 7-45; and Fig. 2); wherein the high temperature effluent stream has a temperature of about 700°C, and the partially cooled effluent stream has a temperature of about 300°C (see Jörgensen, column 3, lines 35-40).

Jörgensen does not disclose wherein the further cooled effluent stream has a temperature ranging from about 127°C to about 160°C.

However, Jörgensen discloses wherein the partially cooled effluent stream is passed through an expansion turbine (17) to be evacuated cold to the ambient environment (see Jörgensen, column 3, lines 41-45). The person having ordinary skill

in the art would recognize that passing the partially cooled effluent stream through an expansion turbine would have the effect of lowering the temperature of such stream to a temperature less than 300°C.

Therefore, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to provide a further cooled effluent stream having a temperature ranging from about 127°C to about 160°C. Moreover, the court has generally held that differences in temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such temperature is critical. *See* MPEP § 2144.05(II)(A).

38. With respect to claim 12, Jörgensen discloses a process for recovering heat from a high temperature effluent stream from catalyst regeneration, wherein the process comprises the steps of: (a) passing the effluent stream (3) through a heat exchanger (10) associated with a steam generator (9) fed with boiler feed water (through a boiler feed water valve (5)) to produce high pressure steam and partially cool the effluent stream; (b) passing the partially cooled effluent stream through a heat exchanger (7) associated with a high pressure boiler feed water preheater to provide preheated boiler feed water and further cool the effluent stream; and (c) passing the preheated boiler feed water to the steam generator (9) (see Jörgensen, column 3, lines 7-45; and Fig. 2); and wherein the high temperature effluent stream contains catalyst fines and is directed to a catalyst fines removal unit before step (a) for removal of the catalyst fines (see Jörgensen, column 2, lines 59-68).

Jörgensen does not disclose wherein the catalyst fines removal unit is selected

from the group consisting of a cyclone separator or other inertial separation device, a metal filter, and a ceramic filter.

However, Jörgensen discloses wherein the catalyst fines removal unit used in the removal of catalyst fines from the further cooled effluent stream is a cyclone separator (see Jörgensen, column 3, lines 35-38). The person having ordinary skill in the art would recognize that a similar cyclone separator could be used in removing catalyst fines from the high temperature effluent stream prior to the passing of such stream to a downstream heat recovery process (i.e. prior to step (a) of claim 1).

Therefore, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to provide a cyclone separator as the catalyst fines removal unit for the removal of catalyst fines from the high temperature effluent stream.

39. With respect to claims 13 and 14, Jörgensen discloses wherein the further cooled effluent stream contains catalyst fines (see Jörgensen, column 2, lines 59-68) and is directed to a catalyst fines removal unit (15) for removal of the catalyst fines; and wherein the catalyst fines removal unit is a cyclone separator (see Jörgensen, column 3, lines 35-40).

Jörgensen does not disclose wherein the catalyst fines removal unit is used to remove catalyst fines from the partially cooled effluent stream.

However, the court has held that the selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results. *See* MPEP § 2144.04(IV)(C) (citing *In re Burhans*, 154 F.2d 690, 69 USPQ 330 (CCPA 1946)).

Therefore, Examiner finds no patentable weight in the placement of the catalyst fines removal unit so as to remove catalyst fines from the partially cooled effluent stream rather than from the further cooled effluent stream, as taught by Jörgensen, because the effect is exactly the same regardless of placement of such unit – i.e. to remove catalyst fines from the effluent stream.

40. With respect to claim 26, Jörgensen discloses a process for catalytic conversion using a catalyst which accumulates carbonaceous deposit during operation of a catalytic reactor, wherein the carbonaceous deposit is removed in a high temperature regenerator unit with a regeneration medium, the process comprising the steps of: (a) passing a high temperature effluent stream (3) from the regenerator unit to a heat exchanger (10) associated with a steam generator (9) fed with boiler feed water (through boiler feed water valve (5)), to produce high pressure steam and a partially cooled effluent stream; (b) passing the partially cooled effluent stream to a heat exchanger (7) associated with a high pressure boiler feed water preheater to provide preheated boiler feed water and further cooled effluent stream; (c) passing the preheated boiler feed water and the high pressure steam from the steam generator (9) to a steam drum (8) for direct contact and mixing; (d) recovering high pressure steam from the steam drum (8); and (e) passing liquid boiler feed water from the steam drum (8) to the steam generator (9), thereby providing efficient recovery of thermal value.

Jörgensen does not disclose wherein the catalyst is a molecular sieve catalyst. However, Jörgensen's process is not specifically limited to the type of catalyst

used for catalytic conversion. Moreover, it is known in the art to use molecular sieve catalysts for the fluidized catalytic cracking of hydrocarbon streams (see e.g., Vaughn (US 2002/0016522) at page 9, paragraph 96).

Therefore, it would have been obvious to the person having ordinary skill in the art of catalytic conversion processes to provide a molecular sieve type catalyst for use in the process of Jörgensen.

41. With respect to claim 34, see discussion *supra* at paragraph 37.

42. With respect to claims 45 and 46, Jörgensen discloses wherein the partially cooled effluent stream has been cooled to no less than about 277°C, and the partially cooled effluent stream is then passed through an expansion turbine (17) to produce a further cooled effluent stream at a temperature lower than the partially cooled effluent stream (see Jörgensen, column 3, lines 41-45).

43. Claims 5-7, 18, 19, 35-37, and 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haddad (US 5,043,517). Alternatively, claims 5-7, 18, 19, 35-37, and 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haddad (US 5,043,517), as evidenced by Vaughn (US 2002/0016522).

44. With respect to claims 5-7, Haddad discloses a process for recovering heat from a high temperature effluent stream from catalyst regeneration or the like, wherein the process comprises the steps of: (a) passing the effluent stream (10) through a heat exchanger (33b) associated with a steam generator (31) fed with boiler feed water (30) to produce high pressure steam (35) and partially cool the effluent stream; (b) passing the partially cooled effluent stream through a heat exchanger (33a) associated with a

high pressure boiler feed water preheater to provide preheated boiler feed water and further cool the effluent stream; and (c) passing the preheated boiler feed water to the steam generator (see Haddad, Fig. 1 and accompanying disclosure at columns 15-18), and liquid boiler feed water is passed from the steam drum to the steam generator; and wherein the preheated boiler feed water is under high pressure (see Haddad, column 17, lines 26-29) and has a temperature ranging from about 236°C to 260°C (see Haddad, column 17, lines 8-12).

Haddad does not disclose wherein the boiler feed water has a pressure ranging from about 4240 kPa to about 6309 kPa; or wherein the preheated boiler feed water and the high pressure steam from the steam generator are mixed in a "steam drum" and the liquid boiler feed water is passed from the steam drum to the steam generator.

However, Haddad's upper temperature limit of 260°C for the preheated boiler feed water corresponds to a pressure of about 680 kPa (or about 4688 kPa) as can be confirmed from a review of engineering tables for saturated steam at a temperature of 260°C. With respect to Applicant's recitation of a "steam drum," see discussion *infra* at paragraph 46.

Therefore, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to provide boiler feed water having a pressure of about 4688 kPa, corresponding to a saturated steam temperature of 260°C which Haddad discloses as the boiler feed water temperature.

45. With respect to claims 18 and 19, Haddad discloses wherein the feed may be methanol containing etherification debutanizer overhead such as from an MTBE unit (see Haddad, column 8, lines 46-52).

46. With respect to claims 35-37, Haddad discloses Haddad discloses a process for catalytic conversion using a molecular sieve catalyst which accumulates carbonaceous deposit during operation of the catalytic reactor, wherein the carbonaceous deposit is removed in a high temperature regenerator unit with a regeneration medium, the process comprising the steps of: (a) passing the effluent stream (10) through a heat exchanger (33b) associated with a steam generator (31) fed with boiler feed water (30) to produce high pressure steam (35) and partially cool the effluent stream; (b) passing the partially cooled effluent stream through a heat exchanger (33a) associated with a high pressure boiler feed water preheater to provide preheated boiler feed water and further cool the effluent stream; and (c) passing the preheated boiler feed water to the steam generator (see Haddad, Fig. 1 and accompanying disclosure at columns 15-18); and wherein the preheated boiler feed water is under high pressure (see Haddad, column 17, lines 26-29) and has a temperature ranging from about 236°C to 260°C (see Haddad, column 17, lines 8-12).

Haddad does not disclose wherein the preheated boiler feed water and high pressure steam from the steam generator are passed to a “steam drum” for direct contacting and mixing; or wherein the boiler feed water has a pressure ranging from about 4240 kPa to about 6309 kPa.

However, the process of Haddad achieves the same result as that of Applicant's claim 26 – i.e. the generation and recovery of high pressure steam – even in the absence of a "steam drum." Consequently, Examiner finds that the addition of a steam drum as included in Applicant's claim 26 does not patentably distinguish over the teachings of Haddad because Haddad provides explicit suggestion for the generation and recovery of high pressure steam (e.g. via Haddad's heat exchanger 33b). Moreover, Haddad's upper temperature limit of 260°C for the preheated boiler feed water corresponds to a pressure of about 680 kPa (or about 4688 kPa) as can be confirmed from a review of engineering tables for saturated steam at a temperature of 260°C.

Therefore, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to (1) provide a "steam drum" as a substitute means for generating and recovering high pressure steam consistent with Haddad's process, and (2) provide boiler feed water having a pressure of about 4688 kPa, corresponding to a saturated steam temperature of 260°C which Haddad discloses as the boiler feed water temperature.

47. With respect to claims 41 and 42, Haddad discloses wherein the feed may be methanol containing etherification debutanizer overhead such as from an MTBE unit (see Haddad, column 8, lines 46-52).

48. With respect to claim 43, Haddad discloses a multitude of various zeolite catalyst materials for use with his process (see Haddad, columns 9 and 10), i.e. Haddad's process is not specifically limited to any one catalyst type. Moreover, SAPO-34 is

known in the art as an effective catalyst for use in methanol to olefins reactions (see e.g., Vaughn (US 2002/0016522) at page 10, paragraph 102).

Allowable Subject Matter

49. Claims 2, 3, 32, and 33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

50. Applicant's arguments filed 13 September 2007 have been fully considered but they are not persuasive.

51. Examiner understands Applicant's principal arguments to be:

I. Jörgensen's element (10) does not impart heat to liquid preheated boiler feed water therein.

II. Jörgensen's element (10) does not send high pressure steam to a steam drum.

III. Jörgensen's evaporator (9) does not produce high pressure steam.

IV. Jörgensen's reservoir (8) cannot correspond to Applicant's "steam drum" because "water vapor" is the only stream leaving the reservoir (8) and "water vapor" is not "high pressure steam."

V. Haddad discloses no arrangement at all for the recovery of heat from the effluent of a catalyst regenerator.

VI. Applicant's process differs from that of Haddad because Haddad feeds a mixed steam-water stream

to the steam generator whereas Applicant feeds liquid preheated water to the steam generator.

VII. Haddad shows no steam drum element.

52. With respect to Applicant's first argument, Examiner construes Applicant's claim 1 to require liquid preheated boiler feed water to be fed to the steam generator (see discussion *supra* at paragraph 11).

53. With respect to Applicant's second and third arguments, Jörgensen clearly discloses wherein steam is produced in the evaporator (9) sent to a steam drum (8) (see Jörgensen, column 3, lines 10-17). Examiner finds Applicant's recitation of "high pressure" steam to be of no patentable consequence since Jörgensen clearly discloses "steam."

54. With respect to Applicant's fourth argument, Examiner finds the "water vapor" leaving Jörgensen's reservoir (8) (i.e. "steam drum") to be synonymous with "steam." Moreover, Examiner finds Applicant's recitation of "high pressure" steam to be of no patentable consequence since Jörgensen clearly discloses "steam."

55. With respect to Applicant's fifth argument, Examiner notes that Haddad discloses wherein effluent gas (29) from the catalyst regenerator (20) can be recycled and used as regeneration gas in a catalyst regenerator (20) (see Haddad, column 17, lines 30-35) and wherein heat is recovered from the catalyst particles in the regeneration zone (23) (and which particles may be fluidized in the presence of the recycled effluent gas (29)). Thus, Examiner submits that Haddad's disclosure is broad enough to disclose and/or suggest the recovery of heat from a catalyst effluent stream.

56. With respect to Applicant's sixth argument, Examiner does not find Applicant's feeding of a water stream to the steam generator to be patentably distinguishable from Haddad's feeding of a mixed water-stream stream to the steam generator.

57. With respect to Applicant's seventh argument, Examiner submits that the process of Haddad achieves the same result as that of Applicant's claims 1 and 26 – i.e. the generation and recovery of high pressure steam – even in the absence of a "steam drum." Consequently, Examiner finds that the addition of a steam drum as included in Applicant's claims 1 and 26 does not patentably distinguish over the teachings of Haddad because Haddad provides explicit suggestion for the generation and recovery of high pressure steam (e.g. via Haddad's heat exchanger 33b) (see discussion *supra* at paragraphs 44-48).

Conclusion

58. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Randy Boyer whose telephone number is (571) 272-7113. The examiner can normally be reached Monday through Friday from 10:00 A.M. to 7:00 P.M. (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola, can be reached at (571) 272-1444. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

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RPB

/Glenn A Caldarola/

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